



The ear is always listening

Noise creates stress that brings you down.



Silence please!

Interview with René Schlageter, Director for Design and Development at the GEIGER Company.



New products

Mechanical and electric operating systems, radio controls.



Christmas time: time for silence.



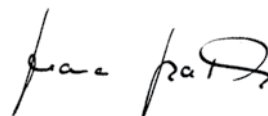
However, for many people, Christmas is much more a time of hectic activity with last minute gift shopping to home decoration, and from cooking to event planning. And yet, the long, dark nights of winter time are an excellent opportunity to take a break for silent reflection. Silence is important to us not only during the Holiday Season: the second issue of "GEIGER Impulse" deals with a subject that is essential for the future: the reduction of noise in everyday life.

Do you know that GEIGER motors provide extremely quiet and smooth running operation? And do you know that GEIGER has also taken a number of measures to eliminate or reduce risks to health and safety from noise at work. For more information on these topics please read our report on the next pages.

But first of all we would like to wish you a Merry Christmas – as busy or as peaceful and quiet as you wish it to be.



Hans-Michael Dangel



Dr. Marc Natusch

■ Introduction

The ear is always listening

In 1905, the German bacteriologist and Nobel Prize-winner Robert Koch wrote "the day will come when man will have to fight noise as inexorably as cholera and the plague."

And indeed: traffic noise, the printer at work, background music in stores. Our ears are constantly on reception even in sleep. Noise creates a form of stress that keeps our bodies in a state of constant alert.



Sound is measured in decibels (dB). The human ear reacts to a sound level of 30 dB, as from 65 dB the noise level is harmful to people, the threshold of pain is considered

to be 130 dB and at 180 dB noise may have fatal consequences.

"The day will come when man will have to fight noise as inexorably as cholera and the plague."

Robert Koch

The official noise level in offices should not exceed

55 dB. This corresponds approximately to the volume of normal conversation. For concentrated work, the level of background noise should not exceed 45 decibels. To get this value as close as possible the selection of low-noise computer equipment is important. State of the art computers and printers produce noise levels of max. 48 dB.

Noise pollution in the workplace can also come from automated sun protection systems. In times of sun and wind controllers with numerous cycles a quiet-running sun protection motor brings extra comfort. GEIGER motors are among the quietest on the market and are on average 3-10 dB quieter than comparable competitive products. It does not sound like much but makes a big difference because the human ear already registers a change of 1 dB; a noise reduction of 6 dB corresponds to a halving of the subjectively perceived loudness. In addition, each saved decibel increases the feeling of well-being and the productivity. Quietness is strength!

Preventive measures against noise pollution:

- Low-noise office equipment and motors for sun protection systems
- Ban "noise makers" in separate rooms
- Acoustic hoods on noisy equipment
- Sound-absorbing desk pads
- Sound absorbing ceilings and floors
- Set the air conditioning, heating and ventilation systems correctly
- Try to separate noisy spaces from quiet areas
- Sound-insulated doors and windows
- Add plants: they are nature's sound absorbers

Silence please!

Interview with René Schlageter, Director for Design and Development at the GEIGER Company.

Work requires concentration. In addition to loud conversations and noisy office equipment the sun protection systems can also produce disturbing noise. In the following interview, we would like to focus on this special issue:

The sun protection components can generate noise. But where does it originate from?

External sun protection elements are always exposed to weathering. The wind usually causes the most noise when blowing through the rolling shutter slats, the Venetian blinds lamellae or the awnings' arms. Quality products have here a clear advantage: high-quality materials and excellent processing make the difference.

Drive motors for sun protection are also potential sources of noise. And here too the quality factor is decisive: through the use of advanced materials and best workmanship we have achieved a significant reduction of the noise emissions in our sound-optimized motor series GEIGER GJ56.. SILENT. Moreover, the new braking system ensures a soft stop of the Venetian blinds.

How and why does noise generate on the facade?

It is important to distinguish two types of sound propagation: airborne noise - as the term implies - travels through the air. Structure-borne noise is propagated through structure - such as facade elements, walls, heating pipes - as vibration.

Both merge into each other: if airborne sound waves meet with e.g. walls or ceilings, they turn these "obstacles" into vibrations. Airborne noise changes into structure-borne noise and is then radiated again as airborne noise in an attenuated way into adjoining rooms.

With regard to the sun protection systems, this means that the audible noise from the motor or from the whole system is directly transmitted through the air. Possible vibrations, however, go as structure-borne noise into the facade and other building parts and radiate from there as airborne noise. In the worst case, a resonance effect can be observed.

If the motor is a quite noisy one, either due to unbalance, poor quality or high tolerances, the noise emission level can greatly increase. GEIGER motors run more smoothly and quietly than conventional motors so that the noise emission level is significantly reduced on the facade and inside the room. But the motor is not the only factor to guarantee a low-noise sun protection system. However the noise can be reduced if following points are considered: facade design, careful selection of the sun protection product and its fixation elements as well as a professional installation.



What are the measures taken by GEIGER to manufacture low-noise products?

Measures against noise are taken during all manufacturing steps: from conception through development and production.

The high-quality fixation system you will find in the GEIGER motors is also essential. To prevent the transmission of running noises and vibrations into the sun protection system and into the building wall, effective sound absorbing mounting solutions are available.

Through our many years of experience, we select the materials that are particularly suitable for high-level noise protection. The gear teeth are designed and mounted with the utmost care to ensure quiet and smooth operation of the motor. Additionally, all rotors and receivers are processed with maximum precision before installation in order to achieve optimal operation.

During product development we realize structure borne measurements to identify unpleasant sound frequencies so that we can optimize the low noise quality of the product. During series production, each engine is again tested with regard to structure-borne noise and concentricity: variations in the frequency profile also enable us to detect any error, the sound giving us valuable information for quality assurance.

How to select a low-noise sun protection system?

Basically, the user can select high-quality and low-noise motors. GEIGER motors have - in addition to the advantages already mentioned - a new brake system that has been optimized in order to achieve a further noise reduction. The motors are designed so that the low noise level is maintained throughout their lifetime.

Also, a sun protection system which is moved by means of a crank handle is much quieter than one which is equipped with a belt system. A crank mechanism avoids the fast and loud pulling up and down of the shutter which often occurs when a belt is used.

Sun protection systems can be noise-free if the customer pays increasing attention to quality, accurate installation and proper operation of the system.



Photos: Jörg Hempel

■ Reference

Quiet motors for the best working environment

Through a clever renovation, old buildings can be successfully redesigned with emphasis on energy efficiency and attractive modern architecture.

One good example is the "Poseidon Haus" in the Theodor-Heuss-Allee, Frankfurt. The owner "Deka Immobilien" has invested about 100 million euros in the new office complex LEO that the architects Schneider + Schumacher managed to reconfigure in just 20 months, redesigning two obsolete office buildings. The unit now includes 2.000 offices offering an optimized combination of function, comfort and looks.

The energy-efficient Closed Cavity Façade (CCF) with triple glazing provides high thermal and sound insulation.

In the closed space between the facades aluminum Venetian blinds were placed on the 9,000 m² facade surface to protect from too much sun exposure. Runtime optimized GEIGER motors GJ56.. with mechanical limit stops regulate the pleasantly quiet and unobtrusive movement of the slats.

Through very low motor heating and numerous quality tests performed on all components the GJ56.. is an extremely reliable motor which ensures the "best working environment".

■ Acoustic insulation by GEIGER

Noise is everywhere

Sawing, grinding, drilling ... the sources of noise in the workplace are numerous in the industrial sector. According to the Federal Institute for Occupational Safety and Health, noise induced hearing loss is the most frequently reported occupational disease in Germany – again in 2013. To prevent things going so far, noise reduction has become an ever increasing priority in manufacturing facilities of responsible companies.

Noise control and sound protection are very important issues for the GEIGER Company that takes all necessary measures to protect the health of its employees in the long term. The best protection against noise begins with the selection of quiet running machines and motors. Problem of noise should be tackled at the source already at the design stage. Regular controls make it possible to localize critical areas in the production and to eliminate them systematically. The walls of our slide grinding unit are covered with special insulation panels and a complete sound-insulated booth has been built around the presses that very effectively separates the noise from the rest of the building.

In the special machine construction sector at GEIGER noise protection measures are already considered in the machine's construction phase. Wherever possible, linear motors are used because they run much quieter than conventional electric motors or pneumatic drives. Other components and machines are completely covered with acoustic hoods. Rubber-mounted vibratory conveyors and insulation mats in the machine prevent noise caused by vibration.

And yet, despite all these measures the use of hearing protectors in the production area is mandatory. That's the only way to eliminate the risk to hearing or to reduce this risk to a minimum.



A complete sound-insulated booth around the assembly line and acoustic hoods help reduce the noise emission level.

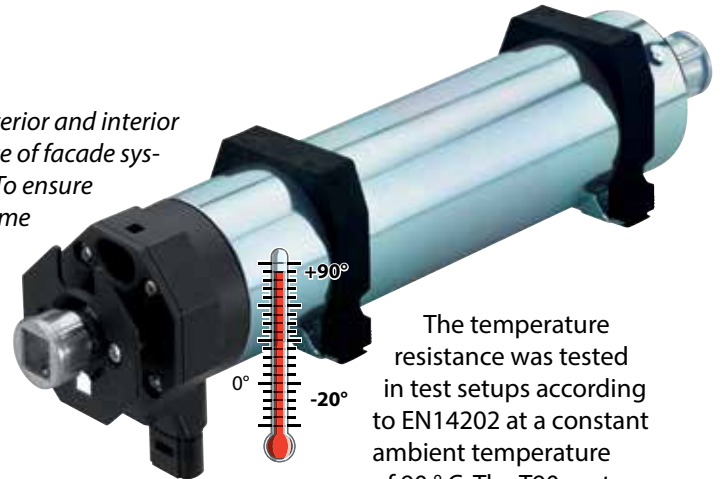
■ GEIGER Venetian blind motor T90

Absolutely reliable, even if it gets hot!

The GEIGER Venetian blind motors are designed for use with exterior and interior blinds. However, the requirements on the temperature resistance of facade systems with integrated sun protection are constantly increasing. To ensure the reliability of the GEIGER Venetian blind motors also by extreme temperature conditions, GEIGER designed the T90 motor with mechanical end stop.

In some climate zones, Venetian blinds are regularly exposed to very high temperatures. But also in the Central European climate, the sun protection systems can be affected through intense sunshine or through new facade systems.

With the new blind motor T90 GEIGER now offers a motor that is designed for a long life under such conditions. Through the use of special materials and components, the motor could be optimized with regard to extreme temperatures.



The temperature resistance was tested in test setups according to EN14202 at a constant ambient temperature of 90 ° C. The T90 motor easily reached 10.000 cycles at constant rated load – thus exceeding the requirements of the test method. Based on these positive results GEIGER guarantees that the T90 can be safely operated in a temperature range from -20 ° C to +90 ° C.

■ GEIGER SOLIDline

Damping makes the difference

With the new motor for folding arm awnings and facade awnings SOLIDline SILENT, GEIGER has greatly improved the proven SOLIDline motors with regard to noise reduction. A special motor fixation allows a significant reduction of the running noise. The GEIGER SOLIDline SILENT operates more than twice as quiet.

The motor fixation plays a decisive role in the noise level reduction of a sun protection system. Both operating noise and vibrations are transmitted in the sun protection system as well as in the building wall. To avoid this, GEIGER has designed the only 14 mm thick motor bearing which is composed of a base plate with holes for fixation and an integrated plastic damping to reduce the structure-borne sound transmission. The use of this damping

element, e.g. with facade awnings, significantly reduces the noise level: around 8 dB (A) while running and around 11 dB (A) when switching off. That is more than a halving of the perceived noise.

To ensure an optimum adjustment of the motor bearing, GEIGER offers the damping elements in two hardness grades. The soft damping is applicable up to 12 Nm output torque, the hard one up to 40 Nm. With regard to the folding arm awnings a counter-bearing can be used in order to achieve a further reduction of the vibrations. The new GEIGER SOLIDline SILENT can be supplied with all speeds between 16 and 134 rpm and with almost all types of controllers. It is available as from now.



■ GEIGER detachable crank handle system

Fits into any corner

A crank handle system for rolling shutters and Venetian blinds offers many advantages, such as low noise operation, compared to conventional belt drive mechanism. However, the crank system might turn into a problem in hard-to-reach-places. The visual aspects should also be considered for decision making. In order to meet these specific requirements GEIGER has designed the detachable crank handle system.



When installing the universal for rolling shutters and Venetian blinds, you might meet some installation situations where a crank handle cannot be permanently attached – for example because the crank would prevent the window from being opened.

With the GEIGER detachable crank system, the crank rod can be removed directly at the universal plate. A small hardly noticeable fixing element is integrated on the plate in order to facilitate the insertion of the crank rod.

The retention force of the connection is guaranteed by GEIGER with this impressive number of 10.000 insertion and removal processes – an extremely long life. The universal plates are available in numerous designs and are made of zinc die-cast or plastic in different colors.



After operating the rolling shutter or Venetian blind, remove the crank handle.



Only the universal and the fixing element are still visible.



Their low height does not affect the use of the window.



■ GEIGER design Avantgarde crank handle

From operating element to interior decoration element

With the Avantgarde design crank handle, GEIGER gives the crank handle for internal sun protection systems a completely new meaning. This crank handle represents an elegant alternative to conventional products.

The interior sun protection systems are often used as design and decoration elements. Cloth and operating elements are immediately registered by the user. He is home and sure enough wants to feel comfortable. With the GEIGER design Avantgarde crank handle the crank drive is entering a new dimension. Functionality, durability, easy care and reliability were the main qualities to be expected from a crank handle. The design Avantgarde crank handle offers one more: an innovative look.



The clear design of the new product generation meets the requirements of our time. The technology is made invisible and the pivoting mechanism is concealed by a sliding sleeve. The crank – with various sleeve models in black, white or genuine wood – can either be harmoniously integrated into the room or used as a fancy eye-catcher.

The experienced industrial designer Christian Jung from JUNGFORMdesign explains: “We want to go a new way, in addition to the different materials used for the blinds, to design and consider the interior sun protection product as an interior decoration element.”

Amendment of standard 13120

Amendments of the DIN EN 13120 are expected to come into force in April 2014.

These amendments aim to reinforce children's safety when using chain and cord manual operating systems.

The amendment of the standard does not concern the use of crank handles as these present no risk of strangulation.



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